What is claimed is:

1)   A machine computational-processing system, for providing current simulated-emotion expression in at least one simulated-humanoid autonomous decision system having at least one ability to assess a set of environmental circumstances, comprising the steps of:

     a)   storing in such at least one simulated-humanoid autonomous decision system planning data providing plan capability to such at least one simulated-humanoid autonomous decision system;

     b)   using information about such set of environmental circumstances of such at least one simulated-humanoid autonomous decision system and such plan capability, computing at least one current planning selection;

     c)   using information about such at least one current planning selection, computing at least one current planning status;

     d)   using information about such at least one current planning status, computing current simulated-emotion-source data; and

     e)   using such current simulated-emotion-source data, computing current simulated-emotion status.

2)   The machine computational-processing system according to Claim 1 further comprising the steps of:

     a)   storing in such at least one simulated-humanoid autonomous decision system a subset of such planning data comprising at least one first plan regarding an extent to which at least one other (non-self) creature of such set of environmental circumstances is copying with such at least one simulated-humanoid autonomous decision system (self);

     b)   computing at least one such extent of at least one such copying by making at least one similarity comparison of at least one decision of such at least one other (non-self) creature when in at least one first circumstance-in-relation-to-itself to at least one decision of such at least one simulated-humanoid autonomous decision system (self) if in such at least one first circumstance-in-relation-to-itself;

135

c)   computationally evaluating such at least one similarity comparison for extent of decision similarity;

d)   including, in such current simulated-emotion-source data, information correlated with such extent of decision similarity; and

e)   including, in such current simulated-emotion status, at least one status of copying simulated emotion of such at least one simulated-humanoid autonomous decision system.

3)   The machine computational-processing system according to Claim 2 further comprising the steps of:

a)   assigning to such at least one non-self creature at least one kind-number representing at least one extent of relative similarity of such at least one non-self creature to such self's own kind; and

b)   computationally adjusting such at least one kind-number to at least partially reflect such at least one similarity comparison for extent of decision similarity by such at least one non-self creature.

4)   The machine computational-processing system according to Claim 3 further comprising the step of computationally assigning at least one current copying simulated-emotion amount, for association with such at least one current status of copying simulated-emotion of such current simulated-emotion status of such at least one simulated-humanoid autonomous decision system, essentially proportional to such at least one current kind-number associated with such at least one non-self creature.

5)   The machine computational-processing system according to Claim 4, wherein such planning data comprises:

a)   a set of hierarchically-organized abstract self-problem representations; and

b)   in association with essentially each of such abstract self-problem representations, a set of hierarchically-organized abstract self-plan representations each comprising a set of abstract self-subgoal representations.

6) The machine computational-processing system according to Claim 4, wherein such planning data comprises:

    a)   a set of hierarchically-organized abstract self-problem representations; and

    b)   in association with essentially each of such abstract self-problem representations, a set of hierarchically-organized abstract self-plan representations each comprising a set of abstract self-subgoal representations;

    c)   wherein at least one such abstract self-problem representation comprises at least one copying problem, about at least one extent of self-not-copying with at least one such non-self creature, a relevance of such at least one copying problem being essentially proportional to such at least one current kind-number associated with such at least one non-self creature.

7) The machine computational-processing system according to Claim 4, wherein such planning data comprises:

    a)   a set of hierarchically-organized abstract self-problem representations; and

    b)   in association with essentially each of such abstract self-problem representations, a set of hierarchically-organized abstract self-plan representations each comprising a set of abstract self-subgoal representations;

    c)   wherein at least one such abstract self-problem representation comprises at least one copying problem, about at least one extent of at least one such non-self creature not-copying with such self, a relevance of such at least one copying problem being essentially proportional to such at least one current kind-number associated with such at least one non-self creature.

8) The machine computational-processing system according to Claim 5 wherein such current simulated-emotion-source data comprises data regarding current simulated-fear, current simulated-hopelessness, and current simulated-disappointment, comprising:

a) incremental representations of current simulated-fear in amounts essentially hierarchically ordered according to such hierarchical set of self-problem representations; and

b) incremental representations of current simulated-hopelessness in amounts depending essentially upon whether, in at least one such self-plan representation for at least one highest currently-relevant self-problem representation, no subgoal representations are currently relevant.

9) The machine computational-processing system according to Claim 1 further comprising the step of using information about such current simulated-emotion status, computationally providing output signals to operate effectors to provide current simulated-emotion expression of such at least one simulated-humanoid autonomous decision system.

10) The machine computational-processing system according to Claim 4 further comprising the steps of:

a) using information about such current simulated-emotion status, computationally providing output signals to operate effectors to provide current simulated-emotion expression of such at least one simulated-humanoid autonomous decision system;

b) wherein such current simulated-emotion expression comprises simulated-smiles and simulated-frowns;

c) wherein such simulated-smiles are associated with such at least one simulated-humanoid autonomous decision system computing at least one relatively-high extent of at least one such non-self creature copying with such self; and

d) wherein such simulated-frowns are associated with such at least one simulated-humanoid autonomous decision system computing at least one relatively-low extent of at least one such non-self creature copying with such self.

11) The machine computational-processing system according to Claim 8 wherein such current simulated-emotion-source data further comprises data regarding current simulated-frustration, current simulated-surprise, and current simulated-muscle-relief.

12) A machine computational-processing system, for implementing decisions of at least one autonomous decision system in environmental situations, such at least one autonomous decision system having at least one input system for providing temporally-incremental input data about a series of such environmental situations, comprising the steps of:

a) computationally processing such temporally-incremental input data about such series of such environmental situations to provide a temporally-incremental series, respectively, of "present" self-situation representations of such respective environmental situations, wherein

   i) each such "present" self-situation representation comprises a self representation and a set of event representations, each such event representation being represented spacio-temporally relative to each such self representation, wherein each such event representation comprises

      (1) at least one behavioral-type designation selected from a set of behavioral-type designations, each such at least one behavioral-type designation of such set of behavioral-type designations being associated with a set of incremental behavioral self-tendencies for determining incrementally-predicted self-situation representations from each such "present" self-situation representation, and

      (2) a set of current-behavior designations associated with each such event representation specifying the current behaviors of each such event representation;

b) computationally processing data regarding at least one such "present" self-situation representation of such respective environmental situation to determine the representations of a set of incrementally-predicted self-situations, predicted as incremental consequences from such at least one "present" self-situation representation;

139

c)   storing data for hierarchical planning comprising

         i)   a hierarchical set of n problem representations, and

         ii)   m plan-sets of hierarchical subgoal representations, each said plan-set of hierarchical subgoal representations being associated with at least one of said set of n problem representations; and

d)   computationally comparing such data for hierarchical planning with such data about each such "present" self-situation representation and each such incrementally-predicted self-situation to determine

         i)   at least one self-relevancy of each such presented self-situation representation, and

         ii)   at least one self-relevancy of each such incrementally-predicted self-situation representation;

e)   wherein any threat to and any opportunity of such at least one autonomous decision system may be determined.

13)   The machine computational-processing system according to Claim 12 further comprising the step of, from such information determined about any such threat to and any such opportunity of such at least one autonomous decision system, computationally determining at least one decision of such autonomous decision system.

14)   The machine computational-processing system according to Claim 12 wherein such computational comparing step comprises:

a)   computationally determining which of such hierarchical set of n problems includes at least one such "present" self-situation representation;

b)   computationally determining which of such hierarchical subgoal representations includes at least one such "present" self-situation representation; and

c)   computationally determining which of such problem representations and which of such subgoal representations include at least one such incrementally-predicted self-situation representation.

15) The machine computational-processing system according to Claim 12 further comprising the steps of:

a) computationally specifying at least one self trial decision for use in what-iffing; and

b) computationally determining, using such at least one self trial decision, at least one set of such incrementally-predicted self-situation representations.

16) A machine computational-processing system, for implementing natural language functions in at least one simulated-humanoid autonomous decision system, comprising the steps of:

a) storing in at least one computational storage system data comprising non-linguistic discrete data-types and, conforming to each of such discrete non-linguistic data-types, a set of non-linguistic discrete data elements;

b) storing in at least one computational storage system data

   i) respectively linking essentially each such discrete data-type of such simulated-humanoid autonomous decision system with a respective word/phrase category of at least one first natural language, and

   ii) respectively linking selected words/phrases of each such linked word/phrase category of such at least one first natural language with respective such discrete data elements of each such discrete data-type so linked with a such linked word/phrase category;

c) using information about at least one set of current circumstances of such at least one simulated-humanoid autonomous decision system, computationally determining at least one relevance to the simulated-humanoid autonomous decision system of such current circumstances;

d) using information about such at least one relevance, computationally specifying at least one set of relevant such non-linguistic discrete data elements;

e) using such specification of such at least one set of relevant such non-linguistic discrete data elements, computationally determining at least one first communication to be made by such simulated-humanoid autonomous decision system to transform such specified set of non-linguistic discrete data elements into such at least one first communication in such first natural language;

f) wherein such step of computational determining comprises

    i) computationally processing data regarding identifying which of such discrete data elements of such discrete data-types is to form part of such at least one first communication,

    ii) computationally processing data regarding selecting natural-language snippets for pointing to the such categories of such natural-language corresponding to whichever of such discrete data-types includes each such discrete data element which is to form part of such at least one first communication,

    iii) computationally processing data regarding selecting a word/phrase of such natural-language corresponding to each such discrete data element which is to form part of such at least one first communication, and

    iv) computationally processing data regarding producing from grammar practices of such natural language and from such snippet selections and from such word/phrase selections such at least one first communication in such natural language.

17) A machine computational-processing system for implementing first natural language interpretation functions in at least one simulated-humanoid autonomous decision system interpreting incoming first natural language from at least one other, comprising the steps of:

a) storing in at least one computational storage system data comprising non-linguistic discrete data-types and, conforming to each of such discrete non-linguistic data-types, a set of non-linguistic discrete data elements;

b) storing in at least one computational storage system data

    i) respectively linking essentially each such discrete data-type of such simulated-humanoid autonomous decision system with a respective word/phrase category of at least one first natural language, and

    ii) respectively linking selected words/phrases of each such linked word/phrase category of such at least one first natural language with respective such discrete data elements of each such discrete data-type so linked with a such linked word/phrase category;

c) computationally processing such incoming natural language sufficiently to provided data identifying each vocabulary element, snippet type for each such element, and grammatical function for each such element;

d) computationally processing such identifying data to provide a non-natural-language concrete circumstance interpretation of such incoming natural language;

e) computationally determining at least one relevance to such at least one simulated-humanoid autonomous decision system of such circumstance interpretation;

143

f)   wherein such computational determining comprises

       i)   storing data regarding a set of hierarchically-organized, relevant, non-linguistic relational "self"-situations, and

       ii)   computationally processing to determine inclusions of such non-natural-language concrete circumstance interpretation within such non-linguistic relational "self"-situations to determine any relevance of such non-natural-language concrete circumstance interpretation to such at least one simulated-humanoid autonomous decision system,

       iii)   wherein such data regarding such set of hierarchically-organized, relevant, non-linguistic relational "self"-situations includes data regarding

           (1)   a set of hierarchically-organized problem relational "self"-situations, and

           (2)   in association with essentially each of said problem relational "self"-situations, a set of hierarchically-organized plan relational "self"-situations.

18)   The machine computational-processing system according to Claim 17 wherein such interpreting simulated-humanoid autonomous decision system possesses abilities to select for use in interpretation similar cognitive, relevancy, and emotion systems to those of the at least one other.

19)   The machine computational-processing system according to Claim 17 wherein such step of computational processing of such incoming natural language comprises natural-language default-selecting to process data regarding selection of non-natural-language data types and data for correspondence with such incoming information.

20) The machine computational-processing system according to Claim 17, further comprising the steps of:

    a)   computationally processing data regarding at least one story-series of such incoming information to provide at least one story-series of such non-natural-language concrete circumstance interpretation; and

    b)   computationally processing data regarding such at least one story-series of such non-natural-language concrete circumstance interpretation to provide at least one learned modification of at least one such non-linguistic discrete data element,

    c)   wherein such story-series of such non-natural-language concrete circumstance interpretation is treated as at least one temporally-incremental series, respectively, of "present" concrete self-situation representations of at least one temporally-incremental series of respective environmental situations.

21) A machine-data ontology system, for use in computational processing of cognitive information within at least one autonomous decision system having at least one input system for providing input data about at least one circumstance among objects, comprising the steps of:

   a) storing within such at least one autonomous decision system a large set of non-linguistic data "primitives", such primitives being structured and arranged to classify objects according to which subset of such primitives is assigned to a particular object; and

   b) computationally non-linguistically classifying particular objects;

   c) wherein such non-linguistic classifying comprises computationally assigning a representation comprising a set of such primitives to a particular object, wherein such set of assigned primitives comprises information about behavioral tendencies of such particular object;

   d) wherein a less abstract such representation comprises n such primitives;

   e) wherein such assigned less-abstract representation may be made progressively more abstract by progressively removing subsets x of such assigned set of primitives; and

   f) wherein a most abstract such representation comprises one such assigned primitive (n-x=1).